table, so that the blood, instead of finding its way into the larynx and stomach, may sink into the naso-pharyngeal dome and, welling up by the mouth or nostrils, may find harmless escape.

The anæsthetic preferred is chloroform given by Junker's apparatus. The *form of gag is a difficult question, as none has been devised that always acts* successfully. Smith's gag is the one he uses.

Operation: The first step is the removal of a continuous strip of mucous membrane from the margin of the cleft; this should be uniform in thickness and if possible be taken away in one continuous strip, so that no point will be left undenuded. The palate-knife should be thin-backed with a long cutting edge; old tonsil bistouries that have been frequently ground are very serviceable. Sponges should be firm and honeycombed, but not squeezed up. They should be about the size of a pigeon's egg and firmly attached to the holders.

The next step is a cut three-quarters of an inch long just inside the molar teeth of the superior maxilla. Passing through to the dome, branches of the descending palatine arteries are divided; the bleeding is checked by pressure The periosteum is then released from the bone by variously curved raspatories. This lifting of the muco-periosteal flaps releases the flaps from tension and permits the closure of almost any size of cleft. The velum must be disconnected from its fibrous attachment to the bony palate, and the thoroughness with which this is done has a marked influence upon the success of the operation. The best way of doing this is by using a pair of scissors bent on the flat almost to a right angle, and cutting through the nasal mucous membrane of the velum.

The author prefers silver-wire sutures inserted, beginning at the incisor teeth. The silver sutures are best fastened by ordinary torsion forceps. The lateral cuts are ignored, the bleeding having been stopped by pressure.

Failure does not preclude a second operation, and in an instance cited the infection which took place seemingly created a temporary immunity which rendered the second operation successful.

Removal of a Bullet from the Brain Located with the Aid of the Röntgen Rays.—BRAATZ (*Cent. f. Chir.*, 1898, No. 1) reports an interesting case in which he was able, after two attempts, to remove a bullet from the brain substance, the patient making a complete recovery.

The symptom most complained of was an intense pain that was unbearable when the head was held to the left side. After a number of skiagraphs had been taken, one was obtained which showed the ball in the anterior portion of the brain. In this skiagraph an iron wire had been placed above the ear and extending onto the forehead, while in front of the ear and perpendicular to the first wire a measurement was made in centimetres by means of horizontal pieces of wire.

The first operation consisted in the formation of a bone and integument flap by means of Gigli's wire saw, the opening being increased in size by the use of rongeur forceps. The ball, however, was not found, even after the dura was opened and the brain palpated. The difficult breathing of the patient necessitated a cessation in operating, and the wound was closed and healed by primary union. There was, however, no relief from the symptoms.

A series of skiagraphs were now taken, but it was impossible to get a picture in the antero-posterior direction. In all of these cases Reed's base line was marked by lead wire and showed in the skiagraphs. At length by placing the plate at an angle on the left temporofrontal region a skiagraph was obtained from a second point, which showed the shot. In this case a lead wire was placed above the nasal bones so that this point was readily determined. A second shadow, which was due to a fragment of lead upon the opposite side of the cranial cavity, was also shown, and from these points and their relation, it was roughly determined that the ball lay deeper in the brain substance than had been at first supposed, and anterior to the opening made in the first operation.

This rough method of determining the location of the ball, which is crude compared with numerous mathematical methods now employed, served the purpose of guiding the ingenious efforts of the author to the successful removal of the ball in the following manner.

The bone integument flap formerly made was again removed and the dura mater. A blunt needle was now employed as a probe, and the brain punctured in the direction of the bullet, which was finally located. A dull fruit-knife was then passed along the needle, thus avoiding hemorrhage, and after this a pair of closed Kocher's forceps with which he finally succeeded in grasping and removing the bullet. The patient made an uninterrupted recovery.

The Primary Union of Extensive Wounds.—The difficulty met with in procuring primary union in wounds of great depth or of large flaps, as after amputations, has led frequently to attempts by numerous operators to devise new methods in the hope of avoiding drainage or the accumulation of clots that must gradually be absorbed. It is in this connection that HIRSCHBERG (*Cent. f. Chir.*, 1897, No. 52) has devised the following method of suturing, which he claims does away entirely with the necessity for drainage and the use of compressive dressings, as advocated by Credé, while it prevents the accumulation of clots or serum by holding the even extensive flaps in close apposition throughout their entire extent, and thus promoting primary union.

The method of suture he employs is modelled upon that used by Tait in recto-vaginal fistulæ; it is essentially as follows: The entire wound is encircled by the silver-wire sutures; they do not, however, enter through the skin, but just within its margin, passing deeply beneath the bottom of the wound and emerging on the opposite side just within the skin. They are not tightened much in knotting, but each stitch compresses the tissues on either side of the wounds, as if they were between the arms of a safety-pin. The skin edges, though not penetrated, are thus brought closely together and unite *per primam.* Interrupted sutures may, however, be placed between the silver sutures in some cases with advantage.

The peculiar advantages of this method are that there is no foreign suture material in the wound area. The walls of the wound are held in close approximation by the wire sutures, which run outside of them and yet parallel, and hold them so that they cannot fold upon themselves. In removing these sutures the wire loop should be drawn up sufficiently to permit the introduction of sharp-pointed scissors.